

Date: Monday, 3/19/2007 4:39:48 PM  
 User: Kim Johnston

## Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: FWD TUBE ASSEMBLY
Job Number	: 31306		
Estimate Number	: 10467		
P.O. Number	: <i>N/A</i>	Part Number	: D3391021
This Issue	: 3/19/2007 S.O. No. : <i>N/A</i>	Drawing Number	: D3391 REV.F
Prsht Rev.	: <i>NC</i>	Project Number	: <i>N/A</i>
First Issue	: <i>N/A</i> Type : MACHINED PARTS	Drawing Revision	: <i>F</i>
Previous Run	: 31305	Material	: <i>N/A</i>
Written By	: <i>[Signature]</i>	Due Date	: 4/10/2007 Qty: 1 Um: Each
Checked & Approved By	: <i>[Signature] 03.20</i>		
Comment	: Est. A 05.09.13 New issue KJJ/JLM		
	: Est. B 06.02.10 Dwg rev.D ecn 773 EC		
	: Est. C 06.05.02 Added inspections EC		
	: est D 07.03.13 rev F dwg EC		

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	D6013047	SKIDTUBE MAT'L
-----	----------	----------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
 SKIDTUBE MAT'L

Pick:

Qty	Part Number	Description	Batch
1	D6013-047	Extrusion	<i>B 26547</i>

*JD 7-3-22*

2.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1  
 Cut extrusion to 46.52 +0.010 -0.020

*JD 7-3-22*

3.0	BENDING	BENDING MACHINE
-----	---------	-----------------



Comment: No bender  
 Bend as per Dwg D3391 Using Bend Prog 3391021

*EL 7-3-28*

4.0	QC5	INSPECT WORK TO CURRENT STEP
-----	-----	------------------------------



Comment: INSPECT WORK TO CURRENT STEP

*DP 7-3-29*

5.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
-----	-------	--------------------------------



Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA590 Rev. *AA* & Dwg D3391 Rev. *F*  
 Identify as D3391-1

2-Deburr

*36 02-04-02 (1)*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Monday, 3/19/2007 4:39:48 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 31306

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

36 07-04-02 ①

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

9mk 07/04/02 ①

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill and c/sink float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)  
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5-Drill wearplate holes as per Dwg D3391 Using Dt8217 & DT8878

6--Deburr

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

07-04-20 ①

10.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

m.l 07/04/23 ①

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

07-04-23 ①

12.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

HL 07-04-23 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

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User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 31306

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

*m-h* 07/04/23 ①

14.0

NAS1330C3KB166

INSERT



Comment: Qty.: 20.0000 Each(s)/Unit Total : 20.0000 Each(s)

Rivnut

Pick:

Qty

Part Number

Description

Batch

14

NAS1330C3KB166

Insert

*m103278*

*FL* 07/04/23.

15.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install Inserts as per Dwg

*FL* 07/05/30 ①

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

*m1012530*

①

17.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Tow Cap Assembly

Pick:

Qty

Part Number

Description

Batch

1

D3401-041

Tow Cap

*B31346*

18.0

D356413

WEARSHOE



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

*B31347*

19.0

D356613

GASKET



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

GASKET

*B31399* *FL* 07/05/300

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA:   P   Date:   11/04/12    
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 3/19/2007 4:39:48 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 31306

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

20.0

AN3C4A

BOLT



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

Bolt

Pick:

Qty

Part Number

Description

Batch

4

AN3C4A

Bolt

m 104322

21.0

NAS1515H3L

WASHER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Washer

Pick:

Qty

Part Number

Description

Batch

4

NAS1515H3L

Washer

m 102535

22.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

washer

m 104215

23.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1

Install tow Cap as per Dwg D3391

Identify as D3391-021

FL 07/05/30 (1)

24.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Inspect thread of each insert using DT8821

m 02 05 30 (1)

25.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: \_\_\_\_\_

PPP B31710 07/06/12

26.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

07/06/12 (1)

U 07-06-12

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

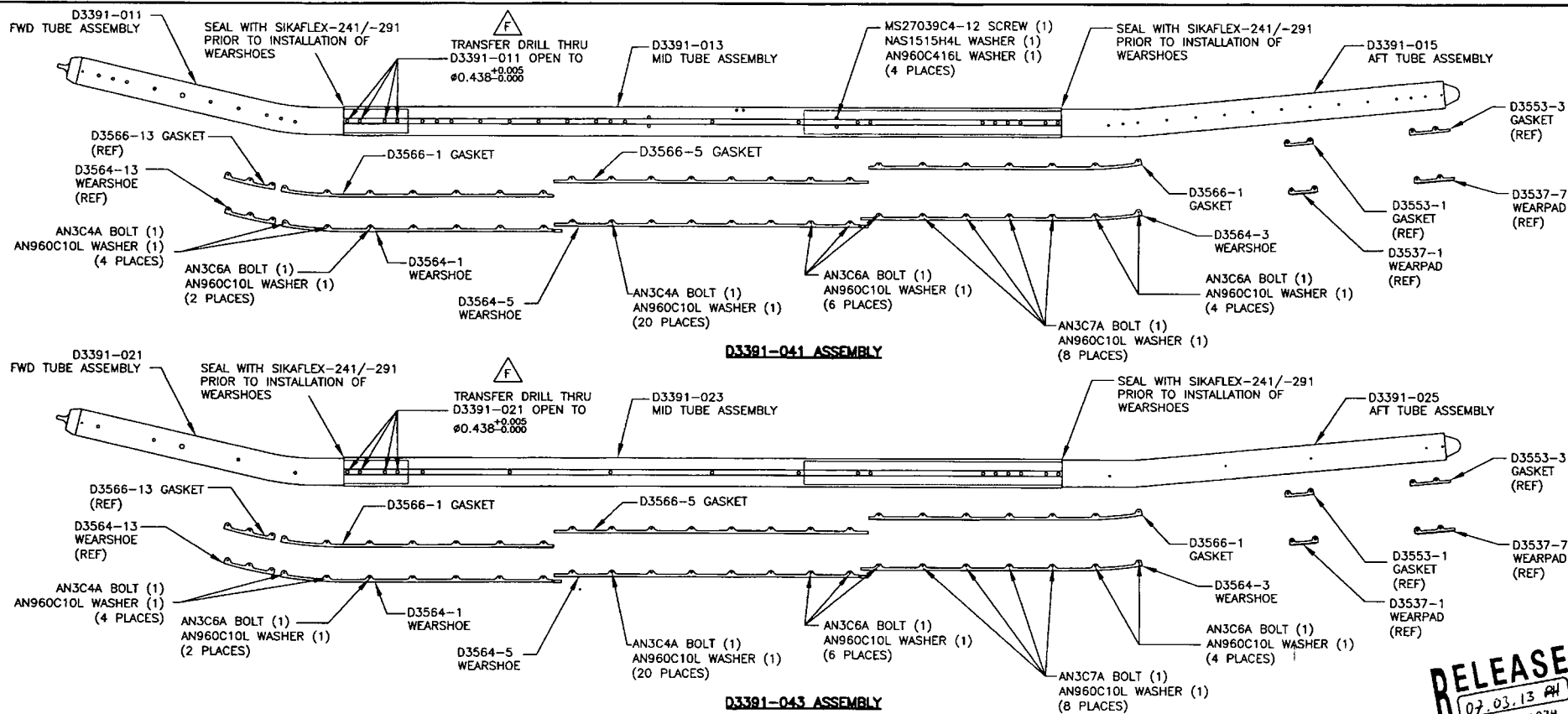
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries





**RELEASED**  
07.03.13 AH  
per Ecn #934

**D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

QTY	QTY	PART NUMBER	DESCRIPTION
041	-043	D3391-041	FLOAT SKIDTUBE ASSEMBLY
X	X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
1	1	D3391-021	FWD TUBE ASSEMBLY
1	1	D3391-023	MID TUBE ASSEMBLY
1	1	D3391-025	AFT TUBE ASSEMBLY
1	1	D3564-1	WEARSHOE
1	1	D3564-3	WEARSHOE
1	1	D3564-5	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	AN960C10L	WASHER
4		MS27039C4-12	SCREW
4		NAS1515H4L	WASHER
4		AN960C416L	WASHER

**GENERAL NOTES**

- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- FINISH: ACID ETCH AND ALDINE PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 'E' SIZE HOLES ( $\phi 0.250$ - $\phi 0.257$ ) FOR WEARSHOE INSERTS. C'SINK  $\phi 0.391/\phi 0.425$  x 100' AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.

NO. 21306  
WORK ORDER  
SUBJECT TO AMENDMENT  
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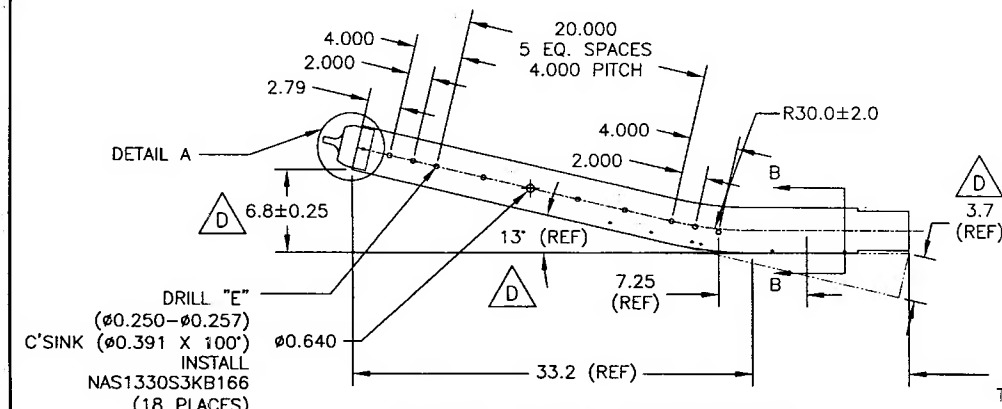
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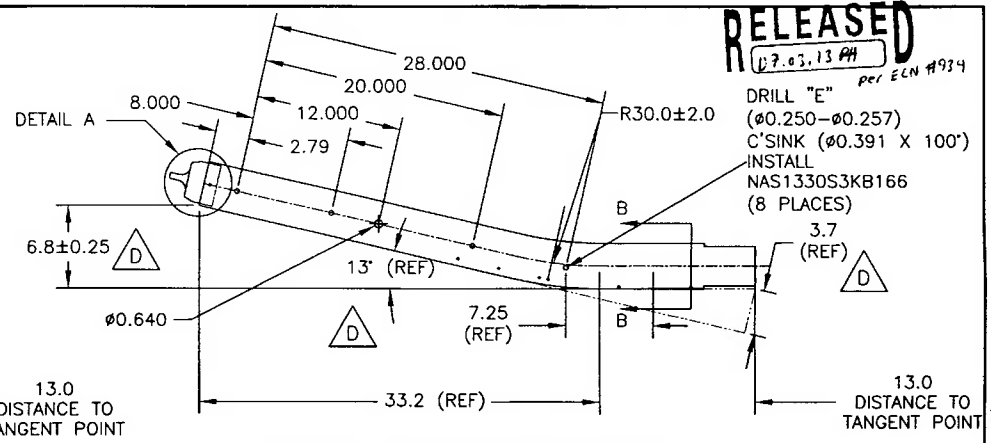
F	07.01.18	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021
E	06.04.25	CHANGE TOLERANCE, EASE MANUFACTURE
D	06.01.23	UPDATE TOLERANCE, CHANGE HOLE SIZE
C	05.09.27	LENGTHEN AFT EXTENSION
B	05.06.10	DRAWING UPDATES
A	05.02.07	NEW ISSUE
DESIGN	PH	DRAWN BY
CHECKED	PH	APPROVED
DATE	07.01.18	TITLE
		412 FLOAT SKIDTUBE
		REV. F
		SHEET 1 OF 5
		SCALE
		NTS

**DART** DART AEROSPACE USA, INC.  
PORT HADLOCK, WA

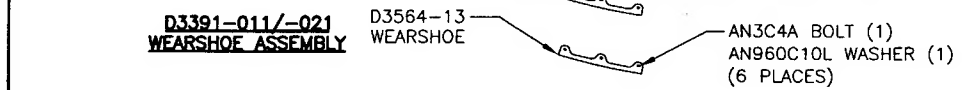
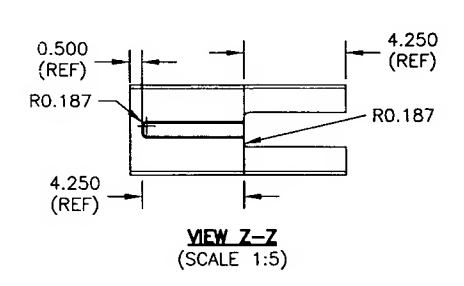
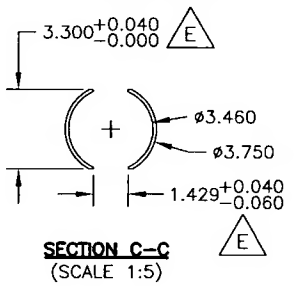
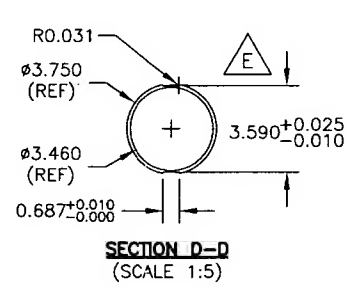
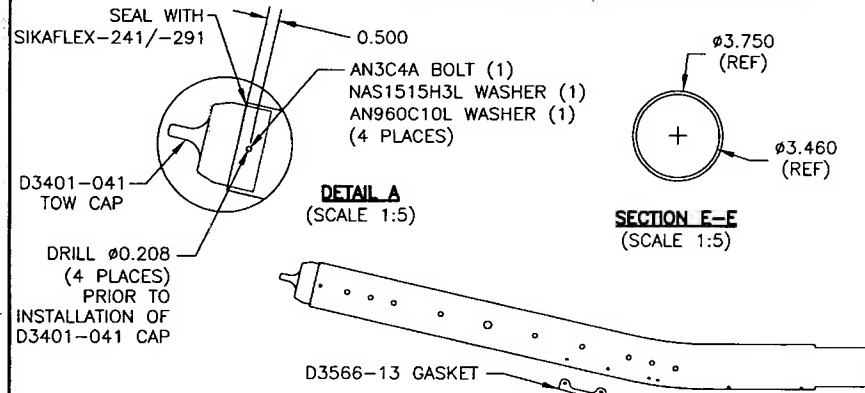
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 07.03.13 AH  
 Ref ELN #934



**D3391-011 ASSEMBLY AND BENDING DETAIL**

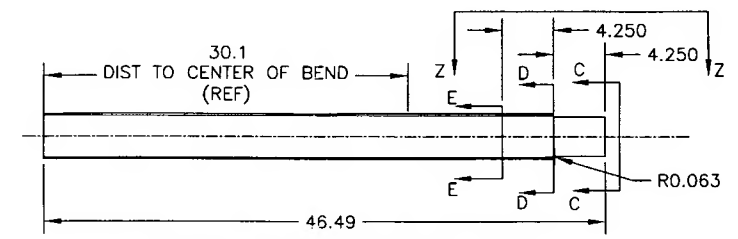
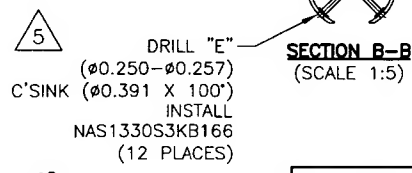


**D3391-021 ASSEMBLY AND BENDING DETAIL**



**D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST**

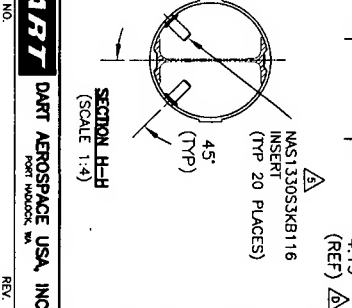
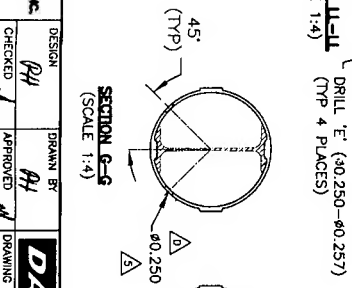
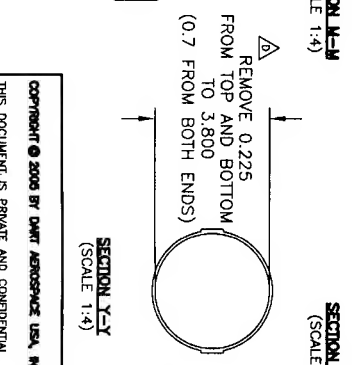
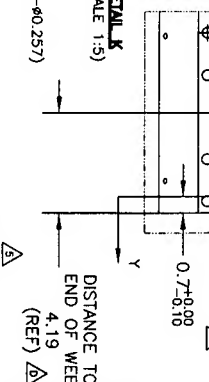
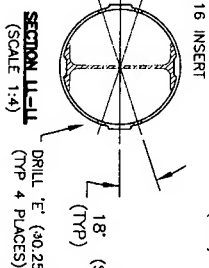
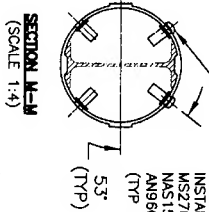
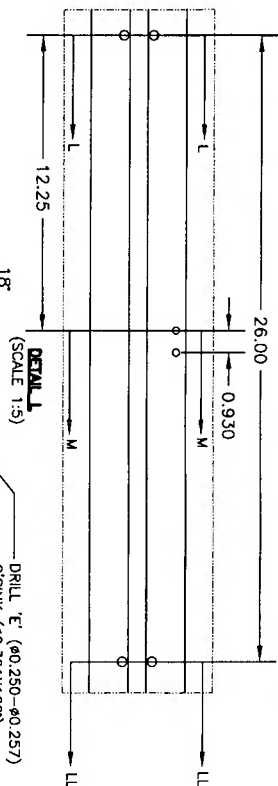
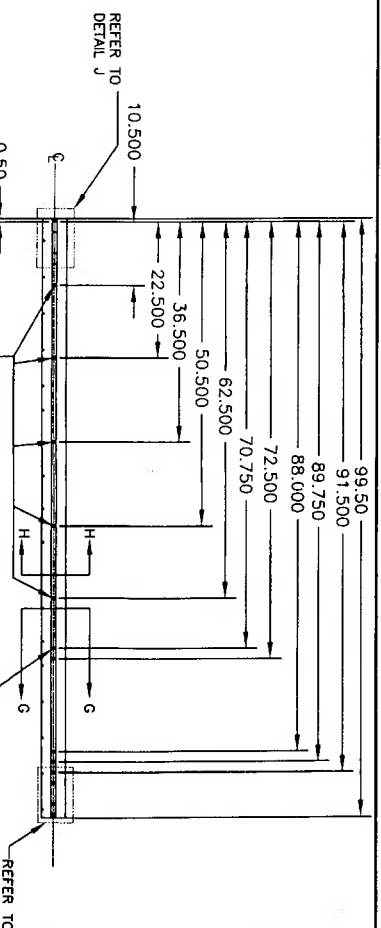
QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X	X	D3391-011	FWD TUBE ASSEMBLY
		D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3566-13	GASKET
10	10	AN3C4A	BOLT
4	4	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER
30	20	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)



**D3391-1 DRILLING AND CUTTING DETAIL**  
 (MAKE FROM D6013-047 SKIDTUBE MATERIAL)

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DATE 07.01.18		TITLE 412 FLOAT SKIDTUBE		REV. F SHEET 2 OF 5 SCALE 1:10

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 WORK ORDER  
 317106



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015  
06

**SECTION X-X**  
(SCALE 1:2)

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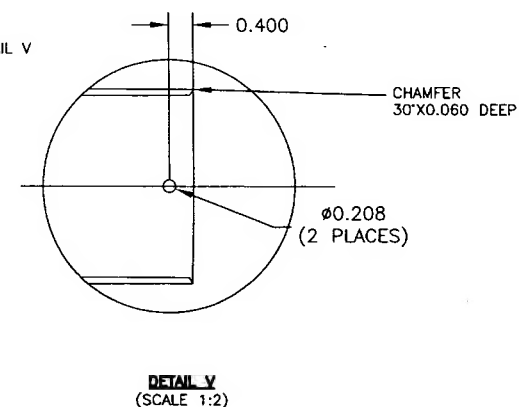
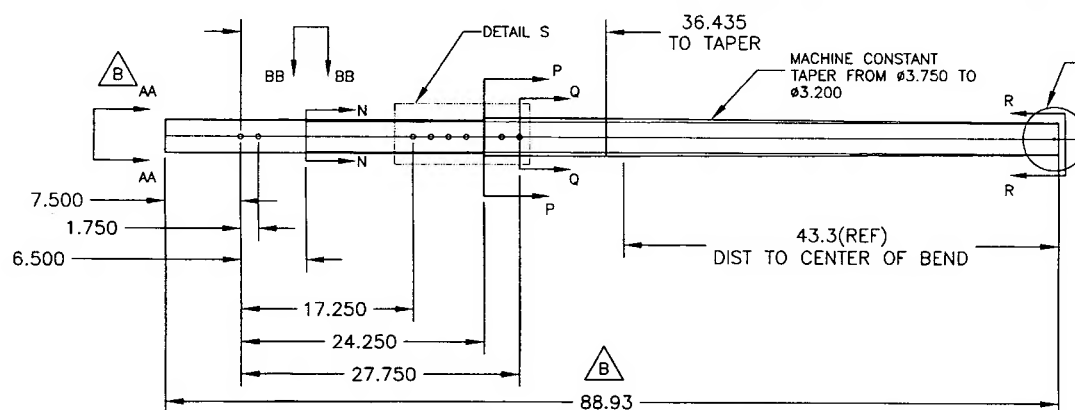
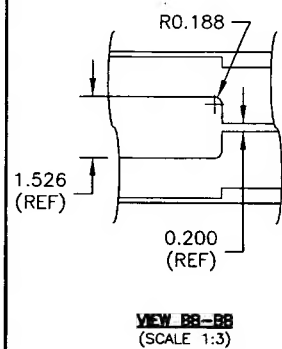
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 <b>DAFT</b>		<b>DAFT AEROSPACE USA, INC.</b> PORT HURON, MI	
DESIGN	PH	DRAWN BY	PH
CHECKED	<del>PH</del>	APPROVED	<del>PH</del>
DATE	07.01.18	DRAWING NO.	03391
412 FLOAT SKIDTUBE		REV.	SHEET 3 OF
		SCALE	1:2

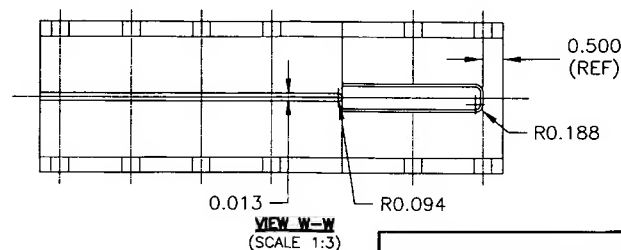
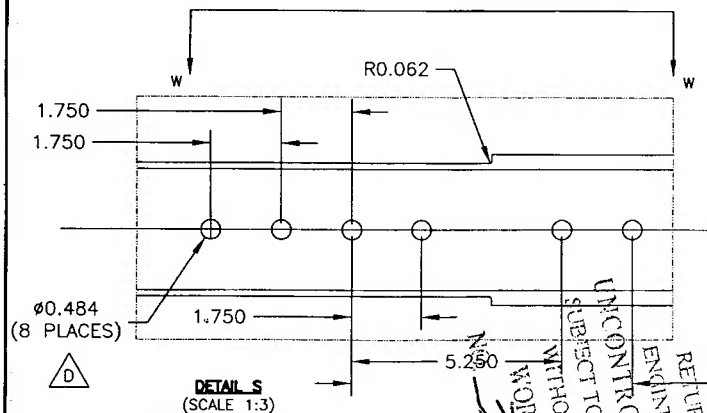
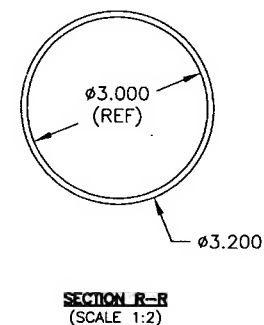
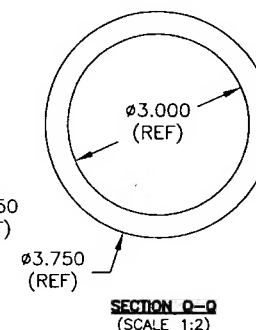
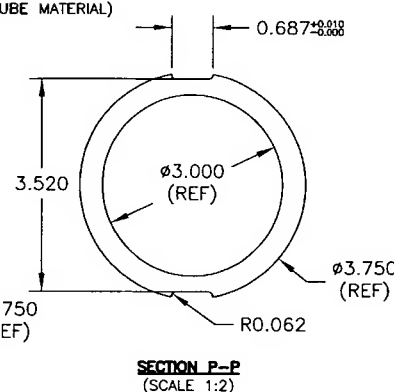
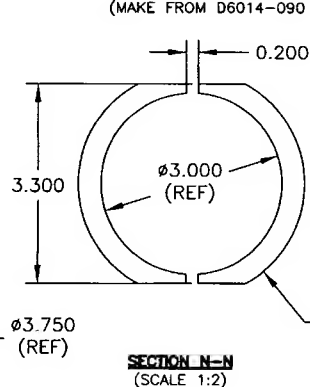
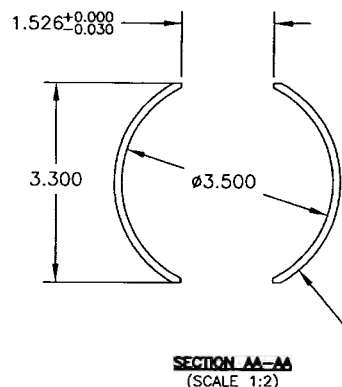
**DIS391-023 ASSEMBLY DETAIL**

RELEASED  
07.05.13 PM  
021 ELN 8934

PC1 ECU 1593-



**D3391-3 AFT DRILLING AND CUTTING DETAIL**  
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)



**RELEASED**  
07 03.13 PM  
per ELN #934

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DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	SCALE 1:12	

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